

WAGNER, HEINDEL, and NOYES, Inc.

P.O. Box 1629 Burlington, Vermont 05402-1629

- Consulting Hydrogeologists
- Engineers
- Environmental Scientists

802-658-0820

FAX: 802-860-1014

August 23, 1993

Mr. E. Matt Germon, Environmental Engineer
Sites Management Section
Hazardous Materials Management Division
Agency of Natural Resources
103 South Main Street
Waterbury, VT 05671-0404

RE: Independent Food Company (Site #89-0455)

Dear Mr. Germon:

Enclosed for your review is our summary report following subsurface investigation of USTs at Independent Food Company. We discussed our findings and recommendations for this site a few weeks ago. Please call with any questions.

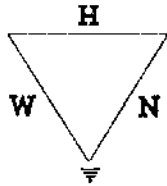
Sincerely,

Dean A. Grover, P.E.
Environmental Engineer

DAG/ral

Enclosure

cc: Robert Desautels, President, Independent Food Company
Gerald Desautels, Desautels & Micciche, Inc.



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INDEPENDENT FOOD COMPANY
Burlington, Vermont

Site #89-0455

UNDERGROUND STORAGE TANK
SITE INVESTIGATION

Prepared by:

Dean A. Grover, P.E.
Environmental Engineer

Reviewed and Approved by:

Jeffrey E. Noyes
Principal

August 23, 1993

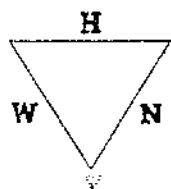
**INDEPENDENT FOOD COMPANY
Burlington, Vermont**

Site #89-0455

**UNDERGROUND STORAGE TANK
SITE INVESTIGATION**

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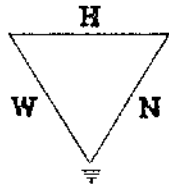
Site #89-0455

**UNDERGROUND STORAGE TANK
SITE INVESTIGATION**

EXECUTIVE SUMMARY

1. The persistence of free-product in two monitoring wells (MW-6 and MW-7) adjacent to a closed-in-place 1,000 gallon underground storage tank (UST) at the Independent Food Company (IFC) property in Burlington, Vermont has prompted additional site investigation.
2. Three additional groundwater monitoring wells were installed in the vicinity of the UST. Measurements and samples of groundwater from these wells and seven other existing wells on the property were used to prepare a water table map and total BTEX and total hydrocarbon contaminant concentration maps.
3. The groundwater flow direction of the site is generally towards the southwest, with local perturbations caused by mounding of groundwater from a roof drain that carries large volumes of precipitation from the IFC building roof.
4. Contaminant contour maps reveal a free product and dissolved phase petroleum plume originating from the vicinity of the 1,000 gallon underground gasoline tank and extending toward the southeast in an apparent cross-gradient direction to the flow of groundwater. The plume configuration has likely been influenced by the local groundwater mound, and the presence of higher permeability UST, utility, and building fill and bedding materials.
5. Evaluation of catch basins, manholes, basements, curb boxes, and floor slabs in the vicinity of the petroleum release show no measurable impacts (evaluated with a photoionizable detector in the field) to these potential groundwater receptors. There are no documented dug or drilled domestic wells within one mile of this study site.

6. Installation of four additional monitoring wells is recommended to evaluate the quality of upgradient groundwater, and to better define the extent and degree of downgradient contamination. We recommend sampling of all new and existing wells (with the exception of MW-4 and MW-5) and laboratory evaluation using EPA Methods 8020 and 418.1. We also recommend installation of a 4" to 6" diameter recovery well equipped with a dissolved-phase groundwater depression and float control pump. Exported groundwater would be discharged to the Burlington POTW after pre-treatment with granular activated charcoal filters.
7. We recommend routine hand-bailing of the recovery well and all monitoring wells containing measurable thicknesses (greater than one-eighth inch) of free-product.



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**INDEPENDENT FOOD COMPANY
Burlington, Vermont**

Site #89-0455

**UNDERGROUND STORAGE TANK
SITE INVESTIGATION**

1.0 OVERVIEW

Owner:

Independent Food Company, Inc.
P.O. Box 428
237 South Champlain Street
Burlington, VT 05402-0428
(802) 862-0800

Tank Owner/Operator:

Independent Food Company

Company Performing Site Investigation and Report:

Wagner, Heindel, and Noyes, Inc.
P.O. Box 1629
Burlington, VT 05402-1629
(802) 658-0820

Rationale for Site Investigation:

This site investigation is being performed in response to the persistent recovery of free-phased gasoline in a monitoring well installed in 1989 adjacent to a 1,000

gallon gasoline tank (MW-7). In addition, occasional sheens have been noted in a monitoring well located just upgradient of this 1,000 gallon gasoline tank (MW-6). This tank and six other underground storage tanks (USTs) at the site were abandoned in-place in 1989. The scope of this investigation includes evaluation of all pre-existing monitoring wells on the site for evidence of historic releases of product from the USTs. A preliminary sensitive receptor survey is included in this investigation, encompassing evaluation of catch basins, manholes, and basements in the vicinity of Independent Food Company (IFC).

State Notification Made:

The State was notified before in-place abandonment of the underground storage tanks at the IFC site. State permission to abandon the tanks in-place was granted in a letter from Patrick Coyne dated October 31, 1989.

2.0 SETTING AND LAYOUT

The seven underground storage tanks under investigation are located on a parcel owned by IFC on the corner of South Champlain Street, and Maple Street in Burlington. The site is located on a portion of the Burlington USGS Topographic Sheet (Appendix 1, page 1).

A 1" = 40' map has been prepared (Appendix 1, page 2), showing most of the IFC parcel and the footprint of the IFC building and adjacent Maple Apartments. Maple Street and South Champlain Street are shown. We have provided the approximate locations of the seven closed-in-place underground storage tanks, based on information from a previous map prepared by New England Marine Contractors (NEMC). Catch basins, manholes, and drop inlets are also provided on this site map.

The USGS site location/receptor survey map (Appendix 1, page 1) provides information about the presence of surface water features in the vicinity of the site. The site dips gently to the west southwest, towards Lake Champlain, the shore of which lies 700 to 800 feet to the west of monitoring well MW-7. Lake Champlain is the ultimate surface water receptor for any contamination that might be carried from the property by groundwater.

The densely populated urban area surrounding the study site is served with domestic water by the Burlington Water Department. The intake for the City of Burlington Water Department is located off Lone Rock Point at the north end of Burlington Bay. The Champlain Water District (CWD) also receives domestic intake water for its large distribution system from a structure located off Redrocks Point at the north end of Shelburne Bay. The locations of both of these intake structures are depicted on the sensitive receptor map (Appendix 1, page 1). Water currents along the eastern shore of Lake Champlain flow predominantly from north to south. Therefore, the CWD water supply intake would be a potential sensitive receptor to discharges into the lake from Burlington Bay.

The closest potential groundwater receptor to the IFC site appears to be a bedrock well supplying potable water to the Queen City Park (VDH #5090), located about 2 miles south of the study area, but petroleum discharges from IFC would almost certainly migrate west-southwest toward Lake Champlain, without influencing this well.

3.0 SITE HISTORY

In 1989, IFC requested permission to close seven underground storage tanks in-place at their property, by evacuating the tanks and filling them with a cement/sand slurry. Prior to closure, the Sites Management Section (SMS) requested that monitoring wells be installed adjacent to each UST to investigate subsurface conditions in the vicinity of each tank (letter dated October 31, 1989 from Patrick Coyne to Jim Clucus of IFC). Eight wells were installed by New England Marine Contracting. A letter dated September 6, 1989 to IFC from Peter Murray of NEMC provides site maps with the locations of the monitoring wells and well logs. However, well logs are absent from the IFC files, and are unavailable at this writing.

NEMC provided qualitative assessments of subsurface petroleum distribution based on visual and olfactory examination of split spoon soil samples extracted during well installation. No photoionizable detectable (PID) results were provided, nor were follow-up laboratory analyses of soil samples performed. Following is a summary of the qualitative

observations made by NEMC from soils recovered during installation of the eight monitoring wells.

<u>Monitor Well ID</u> <u>Observations</u>	<u>Well Location</u>	<u>Qualitative Soil Contamination</u>
MW-1	Downgradient to two 3,000 gallon #2 oil tanks & one 1,000 gallon gasoline tank	Slight diesel odor at 5 - 12' bgs
MW-2	Downgradient to two 3,000 gallon #2 oil tanks	No apparent contamination
MW-3	Upgradient to two 3,000 #2 oil tanks and one 1,000 gallon gasoline tank	Slight diesel odor at 10 - 17' bgs
MW-4 & 5 respectively to one	Upgradient and downgradient contamination 6,000 gallon #2 oil tank	MW-4 - No apparent petroleum MW-5 - "Noticeable" diesel odor
MW-6	Downgradient to one 1,000 gallon diesel tank	"Noticeable" diesel odors
MW-7	Downgradient to one 1,000 gasoline tank	Slight petroleum odor
MW-8	Downgradient to one 1,000 waste oil tank	"Noticeable" sheen

In the October 31, 1989 letter to Jim Clucus of IFC from Patrick Coyne, Site Investigator, Petroleum Sites Management Section, the State granted permission for all USTs on the site to be filled in-place with concrete slurry. However, the State did recommend one round of groundwater testing on monitoring wells 1, 3, 5, 6, 7, and 8. NEMC performed this testing in December 1989 and found free product in MW-6 (1/8th inch) and MW-7 (8 inches). Dissolved phase petroleum constituents were also noted in groundwater samples obtained from monitoring wells 1, 3, and 5. The concentration of BTEX

constituents in these wells was generally less than 10 ppb.

In June of 1992, WH&N was retained by IFC to perform additional subsurface investigations at the site. During evaluation of all wells for free product, a trace (<0.01 feet) of product was noted in MW-6, while 2.21 feet of product was found in MW-7. All other wells on the site showed no traces of free product or product sheens.

Following discovery of the free product in MW-6 and 7 by WH&N, IFC implemented an in-house product recovery program consisting of routine hand bailing of both wells. During each round of bailing, the initial product thickness was recorded, and the total inches of product recovered over the bailing round was also recorded. Product recovery results for MW-7 have been tabulated and graphed in Appendix 1, pages 7 - 9A.

Monitor well 6 was clear of all traces of product by mid-August 1992. Product levels in monitor well 7 have been reduced to about 1-inch as of July 21, 1993. All recovered petroleum products are stored in a 55-gallon drum labeled as hazardous waste, located inside the truck maintenance area of IFC. This drum will be disposed of as hazardous waste within 90 days of being completely filled.

Following installation of additional monitoring wells in the vicinity of the 1,000-gallon gasoline tank (MW-9, 10, and 11) on March 12, 1993, additional free product was observed in MW-11 (2.2 feet noted on April 20, 1993). IFC was instructed to also hand-bail product from this well.

4.0 SAMPLING AND SCREENING OF SOILS AND GROUNDWATER FOR PETROLEUM HYDROCARBONS

IFC was requested to retain the services of an environmental consultant to further define the degree and extent of contamination in the vicinity of MW-6 and MW-7 in a letter from the Sites Management Section (SMS) to IFC, dated January 15, 1993. The SMS further requested that all monitoring wells without free product be sampled and analyzed for EPA Method 8020 and 418.1 constituents, and that a sensitive receptor survey be performed.

Method 8020 and 418.1 constituents, and that a sensitive receptor survey be performed.

Following approval of a work plan prepared by WH&N, dated February 11, 1993, additional subsurface activities commenced. After obtaining Dig-Safe clearance and necessary excavation permits from the City of Burlington Public Works Department (since some wells were located within the right-of-way for South Champlain Street), three additional monitor wells (MW-9, 10, and 11) were installed by Adams Engineering under the supervision of WH&N on March 12, 1993. Monitoring wells MW-9 and MW-10 were located to provide additional information downgradient of the 1,000-gallon gasoline tank. Monitor well MW-11 was installed in a position considered to be upgradient of this tank. The locations of these additional wells and the previously installed wells are shown on the site plan (monitor well MW-8 could not be found as of April 1993 and was presumably destroyed by a roll-off).

Driller's boring logs and WH&N's soil logs are provided (Appendix 1, pages 10 - 12). Soils information was obtained from retrieval of soil samples from a 3" diameter x 60" split spoon sampler, where possible, or otherwise by logging solid auger cuttings. (Split spoon samples could not be obtained for MW-9 and MW-10 due to restricted overhead clearance inside the IFC garage.)

Two-inch diameter, flush-threaded PVC wells with factory-slotted 0.010-inch screens were installed in 4-inch holes just after removal of solid augers. Fourteen-foot screens were installed in MW-9 and MW-11, while a 10-foot screen was installed in MW-10. Pool filter sand was applied to the annular space between the well and borehole until within approximately 1.5 feet of the ground surface, whereupon a bentonite seal was installed to within 0.5 feet of the ground surface. Eight-inch diameter curb boxes, equipped with rubber gaskets to impede infiltration by surface water, were installed over each well.

Soils collected during well installation were logged and placed in Zip-loc bags, whereupon they were screened for volatile organic compounds with a photoionizable detector (Photovac Microtip with 10.6 eV probe). All soil descriptions and PID results are provided in the soil boring logs (Appendix 1, pages 11 - 12). Soils recovered from the monitoring wells generally included fill and fine to medium sands. PID levels were elevated in all

wells, with the highest levels observed near the water table, located approximately 12-14 feet below ground surface. The highest PID levels were observed in monitor well MW-11, with recorded readings as high as 1,106. Each borehole was advanced to approximately 20 feet below ground surface. No bedrock was encountered in any boreholes.

Water levels were permitted to equilibrate in each well, and were then recorded and used, along with survey data, to construct a water table map (Appendix 1, page 2). The contour map shows a general groundwater flow direction toward the southwest. A localized deflection in this generalized gradient is evident from a groundwater mound established near MW-2. This mound was caused by groundwater recharge from a downspout that drains portions of the large roof of the IFC building. This downspout is located about two feet west of MW-2.

On April 20, 1993, volumes ranging from 0.5 to 7 gallons of groundwater were hand bailed from the pre-existing and new monitoring wells on the site after checking each well for sheens or free product. Development and purging of the wells resulted in clear to silty groundwater samples. Samples were analyzed for EPA Methods 8020 and 418.1 constituents. Laboratory reports and chains of custody are provided for both the volatile organic analyses and total hydrocarbon analyses (Appendix 2, pages 1 - 18).

Analytical results have been plotted on two base maps of the site to show the distribution of total BTEX constituents and total hydrocarbons (Appendix 1, pages 3-4). Both contaminant distribution maps show the same plume geometry, with no detectable contamination in monitor wells MW-1 and MW-2 to the northwest of the 1,000-gallon gasoline tank, and increasing levels of contamination toward the southeast, in a direction apparently cross-gradient to the regional groundwater flow direction (which appears to be toward the southwest). These patterns are corroborated by the persistence of free product in monitor wells MW-7 and MW-11. We believe that the southeastward flow of the dissolved phase petroleum plume is driven by the artificial mound established by the roof drain near MW-2, and likely by the existence of utilities along the west side of South Champlain Street that are bedded with gravel, crushed stone, and/or sand. Hydrants and water meter vaults attest to the presence of a water main along the west side of this street which was also marked during Dig Safe clearance.

5.0 INITIAL RISK EVALUATION

To assess actual and potential impacts to releases from the 1,000-gallon gasoline tank, we analyzed for measurable PID levels of contamination in catch basins, manholes, a water line valve box, and basements of both the IFC building and the Maple Apartments building. All results are plotted on a site map (Appendix 1, page 5). No positive readings were recorded with the Photovac Microtip in all manholes and catch basins, with the exception of Drain 1, along South Champlain Street which showed temporary spikes as high as 13.4. Sewage odors were also noted in this catch basin, suggesting cross contamination with the sanitary sewer system. There is no basement inside the IFC building; however, PID examinations were performed of the concrete slab in "Area A" denoted on the site map. No elevated PID levels were observed at this location. Slight oil odors were observed within the automotive pit inside the IFC garage, but no elevated PID levels were observed here. PID evaluations of the air along a wall and under the lowest flight of stairs at the south end of the Maple Apartments also failed to show elevated volatile organic compounds.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Preliminary analysis of the degree and extent of contamination to soils and groundwater beneath the IFC site was accomplished by PID evaluation of soil samples in the vicinity of the 1,000-gallon gasoline tank; by PID testing of air along floor slabs and basements of adjacent buildings, and in catch basins and manholes on the IFC property or in adjacent street rights-of-way, and by laboratory analysis of groundwater samples obtained from ten monitoring wells.

Our survey of manholes and catch basins showed no elevated PID levels, with the exception of Drain 1 located on the east side of South Champlain Street, which showed occasional temporary spikes up to 13.4. A sewer odor was also observed in this drain. No elevated PID levels were observed in the floor slab near the north end of the IFC building, or in the basement of the Maple Apartments.

Laboratory analysis of groundwater from MW-1 and MW-2 showed no detectable contaminants within these wells. These results strongly suggest that the 1,000-gallon gasoline tank adjacent to MW-1 has not released any petroleum constituents, and that the two 3,000-gallon No. 2 fuel oil tanks adjacent to MW-2 also did not leak during active use.

No detectable total hydrocarbon (EPA Method 418.1) levels were observed in monitor wells MW-4 and MW-5 adjacent to a 6,000-gallon No. 2 fuel oil tank. However, very low levels of BTEX constituents (less than 3 ppb) in both wells suggest very minor releases in the vicinity of this tank, likely resulting from spillage or minor overfilling of the tank.

The presence of free product in monitor wells 7, 11, and occasionally monitor well 6, and elevated levels of dissolved phase petroleum constituents in wells 3, 9, and 10 attest to the release of petroleum products from either the 1,000-gallon gasoline tank or the 1,000-gallon diesel tank. This product was likely released from the gasoline tank, since MW-6, which is located upgradient of this tank, shows the least amount of free product when compared to thicknesses observed in MW-7 and MW-11. The petroleum product and dissolved phase petroleum plume appear to be moving in a southeast direction, approximately cross-gradient to the southwestward regional groundwater flow direction. These petroleum constituents are believed to be preferentially moving in this direction from an artificial groundwater mound established near MW-2 (caused by a roof drain on the IFC building), and from gravel/crushed-stone/sand backfilled utility trenches along the west side of South Champlain Street. Given the very low permeability lake sediments encountered in boreholes at the site, it's likely that contamination is largely confined to more permeable fill materials surrounding USTs, buildings, and utilities beneath the property.

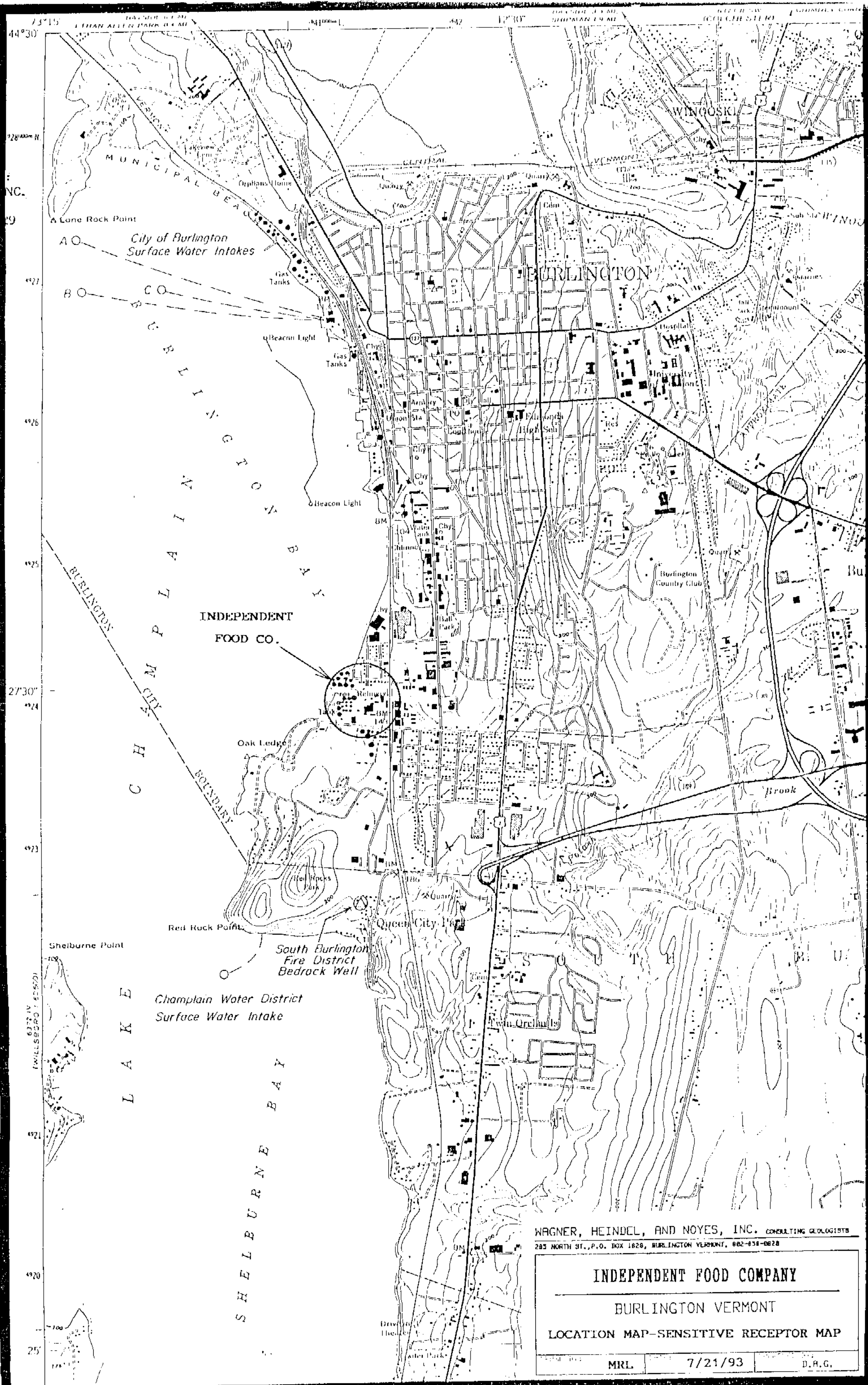
There are no documented domestic dug or drilled wells in use within one mile of this study site. The closest downgradient surface water receptor is Lake Champlain, with its eastern shore located approximately 700 - 800 feet west of the IFC site.

We recommend that the following remedial activities and monitoring activities occur at this site:

1. To determine upgradient water quality conditions, and to better understand the distribution of petroleum contamination southeast of the leaky underground storage tanks, we recommend installation of four additional monitoring wells at locations shown on the attached site map (Appendix 1, page 6). All wells will be installed using the same methodologies and equipment as were used for monitor wells MW-9 through MW-11. Obviously, this site will have to be very carefully Dig-Safed and marked for utilities, especially water mains, during installation of these wells.
2. We recommend an additional round of EPA Method 8020 and EPA Method 418.1 analyses of groundwater samples from all wells on the property, including the proposed wells in Item 1, with the exception of monitor wells MW-4 and MW-5. Analytical results will be plotted on concentration contour maps for both the EPA Method 8020 results and EPA Method 418.1 results and provided to the SMS in a short letter report.
3. At or near the location shown on the site map (Appendix 1, page 6), we recommend installation of a 4" to 6" diameter product recovery well. The exact location of this well will be refined after the second round of groundwater analyses and preparation of contaminant concentration and water table maps from the existing and proposed wells. A slug test of this well would be performed after installation, to estimate hydraulic conductivity. We would install a groundwater depression pump in the recovery well, equipped with a float shut-off valve. The pump would be attached to an aqueous-phase granular activated carbon filtration system, located inside the adjacent IFC garage. Since this garage is not heated, a small heated enclosure would be required that could be insulated and provided with electric resistance heat. Pretreated groundwater would be discharged to the City municipal treatment plant, after obtaining State and City permits.
4. Routine hand bailing of free product from the recovery well and monitor wells MW-7, 11, and any other existing or new wells that show the presence of free product would be performed by WH&N. The bailing frequency would start at five times per week, tapering to 1-2 times per week as necessary to remove the collected product.

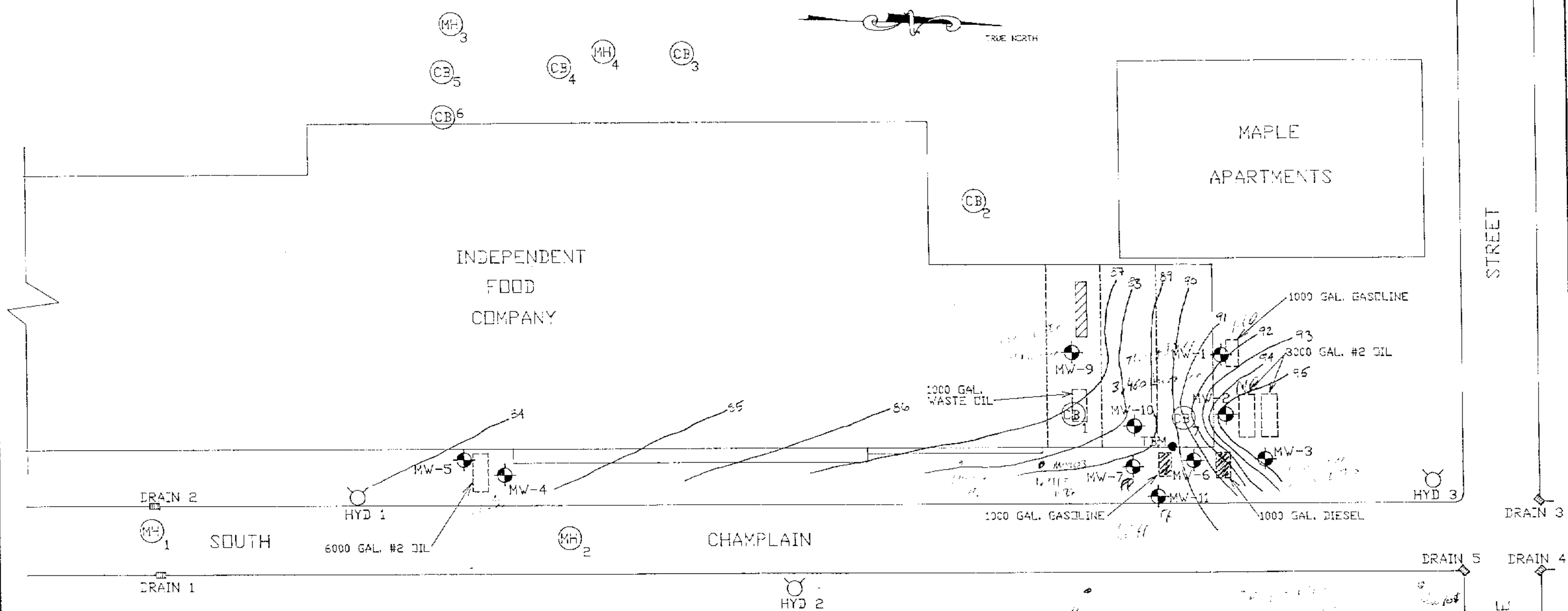
Sorbent polypropylene socks would also be installed in wells with free product, to aid in recovery of this product on a continuous basis.

{RFT-INDEPENDENT/DAG 6-27-93}



WAGNER, HEINDEL, AND NOYES, INC. CONSULTING GEOLOGISTS
285 NORTH ST., P.O. BOX 1828, BURLINGTON VERMONT, 802-858-0828

INDEPENDENT FOOD COMPANY		
BURLINGTON VERMONT		
LOCATION MAP-SENSITIVE RECEPTOR MAP		
MRL	7/21/93	D.R.G.



- LEGEND**
- MONITOR WELL
 - STORM DRAIN
 - MANHOLE
 - FORMER LOCATION OF UST (APPROX. ONLY, ABANDONED IN PLACE)
 - TBM (W-B, TEMP, BENCH MARK)
 - EXISTING FIRE HYDRANT
 - CATCH BASIN
 - AUTOMOTIVE REPAIR PIT

MONITOR WELL	ELEV. TOP OF PIPE (FT)	WATER ELEV. APRIL 23, 1993
1	101.33	91.71
2	101.81	96.21
3	100.32	95.75
4	89.63	84.36
5	89.81	84.30
6	99.47	90.30
7	99.15	*
9	99.19	86.25
10	99.27	88.37
11	99.16	*

MW-8 NOT FOUND, APPARENTLY DESTROYED BY ROLLOFF OR VEHICULAR TRAFFIC.

* MW-7 & MW-11 CONTAIN FREE PRODUCT & WERE NOT ADJUSTED (BASED ON DENSITY CONTRAST BETWEEN GASOLINE & WATER) FOR USE AS WATER TABLE DATA POINTS. SINCE OTHER WELLS WITHOUT PRODUCT ARE NEARBY, DATA FROM WELLS 7 & 11 WERE NOT USED IN DEVELOPING THIS MAP.

SURVEY DATE, 4/30/93.
WHN TBM ASSUMED ELEVATION = 100.00 FT.

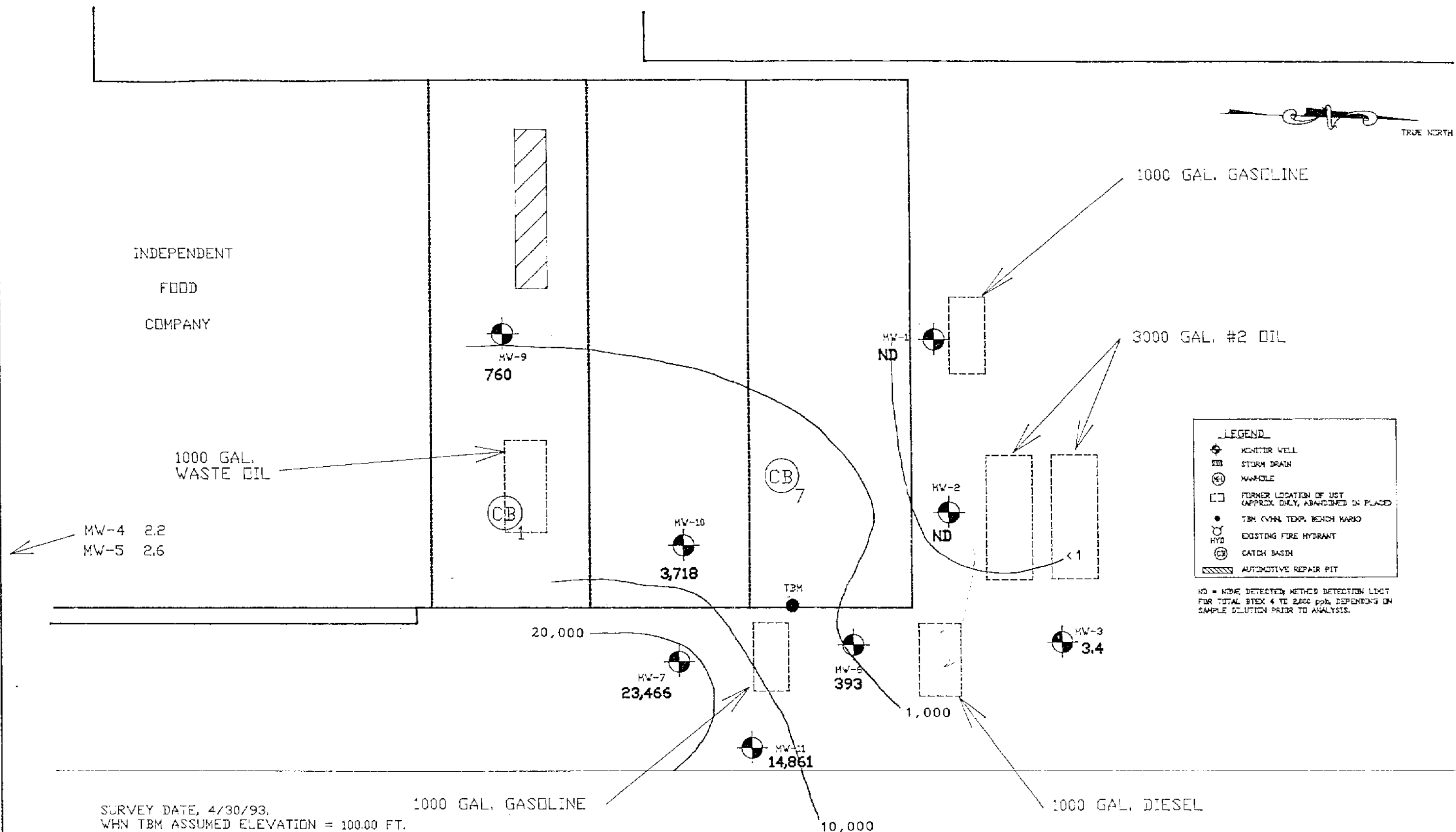
NOTES: FORMER LOCATION OF UST'S TRANSPOSED FROM NEW ENGLAND MARINE CONTRACTORS SITE MAP

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CONSULTING SCIENTISTS AND ENGINEERS
• Hydrogeology • Ecology •
• Environmental Engineering •
BURLINGTON, VERMONT

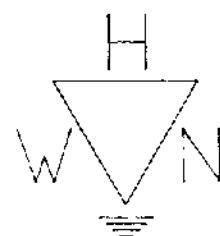
INDEPENDENT FOOD COMPANY
BURLINGTON, VERMONT

WATER TABLE MAP (FT.) - APRIL 23, 1993

DATE: 7/21/93	SCALE: 1"=40'	DRN: MRL	APPD: PM
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NOTES: FORMER LOCATION OF UST'S TRANSPOSED FROM NEW
ENGLAND MARINE CONTRACTORS SITE MAP
ALL CONCENTRATIONS IN PARTS PER BILLION.



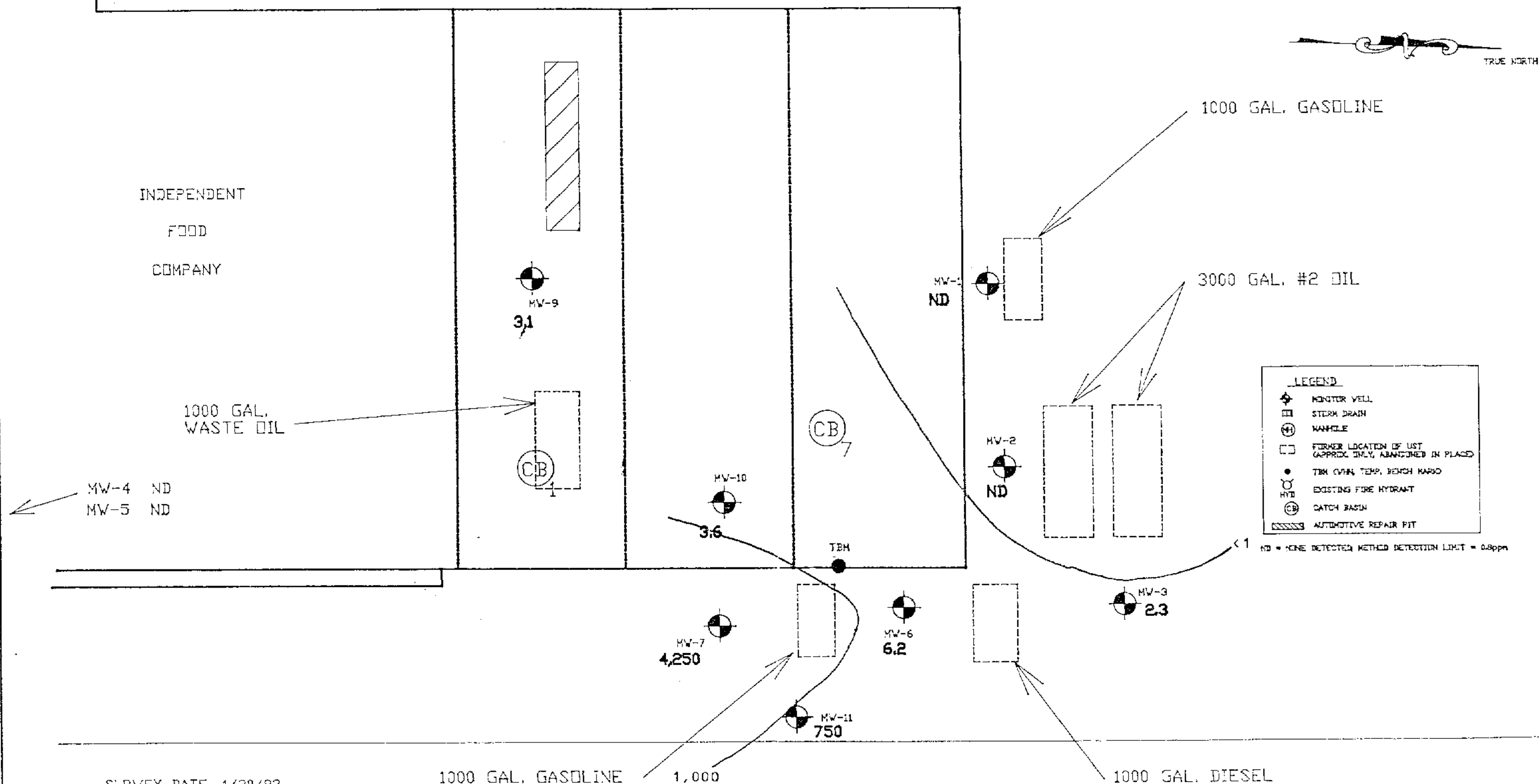
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BURLINGTON, VERMONT

INDEPENDENT FOOD COMPANY

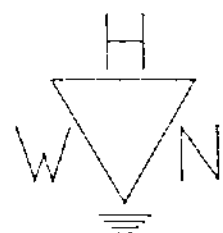
BURLINGTON,			VERMONT		
TOTAL BTEX (EPA METHOD 8020)			APRIL 20, 1993		
DATE: 7/14/93	SCALE: 1"=40'	DRN: MRL	APPD: MRM		



SURVEY DATE, 4/30/93.
WHN TBM ASSUMED ELEVATION = 100.00 FT.

NOTES: FORMER LOCATION OF UST'S TRANSPOSED FROM NEW
ENGLAND MARINE CONTRACTORS SITE MAP

ALL CONCENTRATIONS IN PARTS PER MILLION.



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BURLINGTON, VERMONT

INDEPENDENT FOOD COMPANY

BURLINGTON,

VERMONT

TOTAL HYDROCARBONS (EPA METHOD 418.1)

APRIL 20, 1993

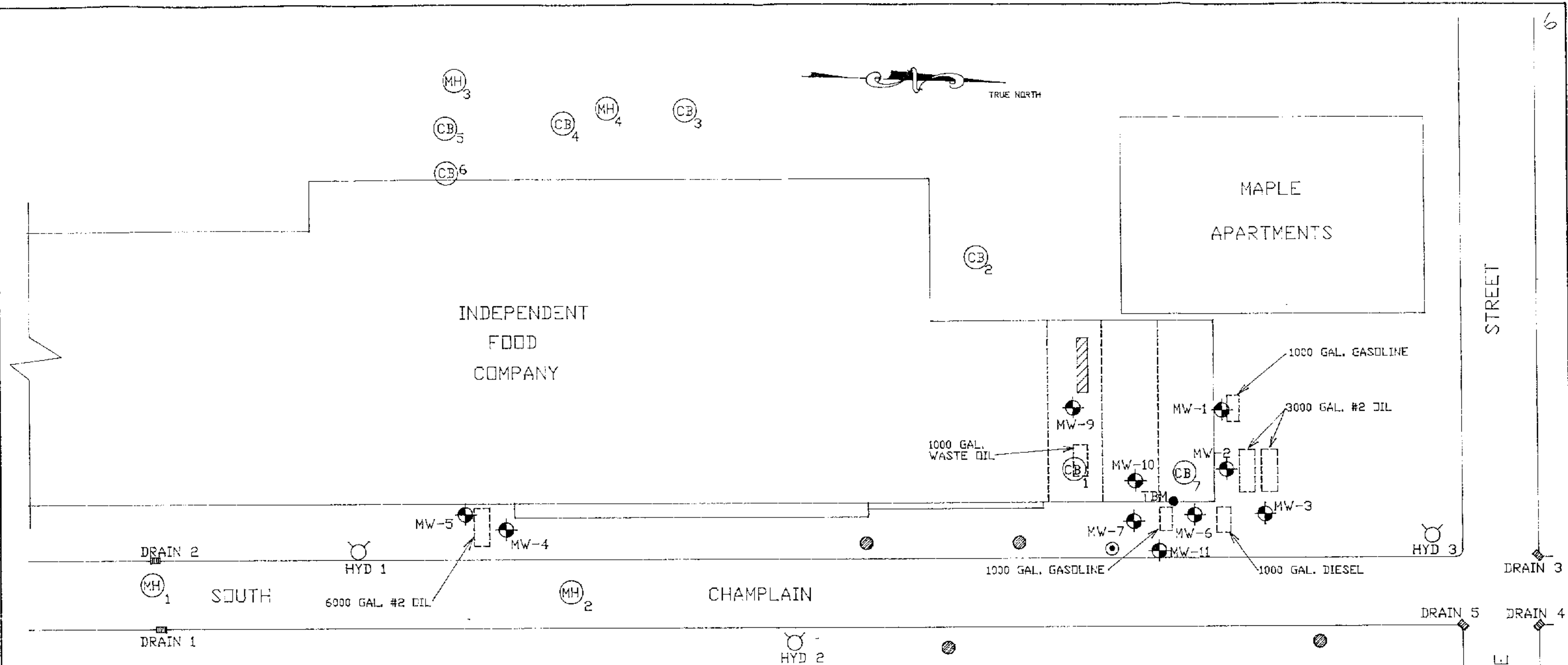
DATE: 7/14/93

SCALE:

1"=40'

DRN: MRL

APPD: MRM

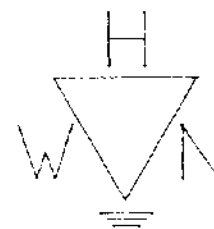


LEGEND	
	MONITOR WELL
	STORM DRAIN
	MANHOLE
	FORMER LOCATION OF UST (APPROX. ONLY, ABANDONED IN PLACE)
	TBM (WING TEMP. BENCH MARK)
	EXISTING FIRE HYDRANT
	CATCH BASIN
	AUTOMOTIVE REPAIR PIT
	RECOMMENDED MONITOR WELL LOCATION
	RECOMMENDED PRODUCT RECOVERY WELL

MONITOR WELL	ELEV. TOP OF PIPE (FT)
1	101.33
2	101.81
3	100.32
4	89.63
5	89.81
6	99.47
7	99.15
9	99.19
10	99.27
11	99.16

SURVEY DATE, 4/30/93.
WHN TBM ASSUMED ELEVATION = 100.00 FT.

NOTES: FORMER LOCATION OF UST'S TRANSPOSED FROM NEW ENGLAND MARINE CONTRACTORS SITE MAP



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BURLINGTON, VERMONT
RECOMMENDED LOCATIONS FOR ADDITIONAL MONITOR WELLS & PRODUCT RECOVERY WELL
DATE: 7/14/93 SCALE: 1"=40' DRN: MRL APPD: MRM

INDEPENDENT FOODS
 BURLINGTON, VERMONT
 SUMMARY OF FREE PRODUCT RECOVERY FROM MW-7

DATE	INCHES FREE PRODUCT IN FIRST BAILER	TOTAL INCHES RECOVERED	GALLONS RECOVERED	CUMULATIVE GALLONS RECOVERED	GALLONS PER DAY RECOVERED
07-Jul-92	22	516	28.1	28.1	
08-Jul-92	4	55	3.0	31.1	3.0
10-Jul-92	1.5	36	2.0	33.1	1.0
11-Jul-92	2	24	1.3	34.4	1.3
17-Jul-92	1.5	20	1.1	35.4	0.2
21-Jul-92	1.5	16	0.9	36.3	0.2
23-Jul-92	1	9	0.5	36.8	0.2
26-Jul-92	1	8	0.4	37.2	0.1
27-Jul-92	0.75	6	0.3	37.6	0.3
28-Jul-92	0.75	6	0.3	37.9	0.3
29-Jul-92	1	7	0.4	38.3	0.4
31-Jul-92	0.75	5	0.3	38.5	0.1
03-Aug-92	1	6	0.3	38.9	0.1
05-Aug-92	0.75	4.5	0.2	39.1	0.1
06-Aug-92	0.75	4	0.2	39.3	0.2
07-Aug-92	0.75	3.5	0.2	39.5	0.2
10-Aug-92	0.75	4	0.2	39.7	0.1
11-Aug-92	0.75	3.5	0.2	39.9	0.2
12-Aug-92	0.75	3.5	0.2	40.1	0.2
13-Aug-92	0.5	2.5	0.1	40.3	0.1
14-Aug-92	0.5	2	0.1	40.4	0.1
17-Aug-92	0.75	2.5	0.1	40.5	0.0
18-Aug-92	0.5	3	0.2	40.7	0.2
19-Aug-92	0.5	3	0.2	40.8	0.2
20-Aug-92	1	6.5	0.4	41.2	0.4
21-Aug-92	0.75	5.5	0.3	41.5	0.3
24-Aug-92	0.75	5.5	0.3	41.8	0.1
01-Sep-92	1	4	0.2	42.0	0.0
02-Sep-92	0.75	3.5	0.2	42.2	0.2
03-Sep-92	0.75	3	0.2	42.4	0.2
04-Sep-92	0.5	1	0.1	42.4	0.1
08-Sep-92	0.75	3	0.2	42.6	0.0
09-Sep-92	0.5	2.5	0.1	42.7	0.1

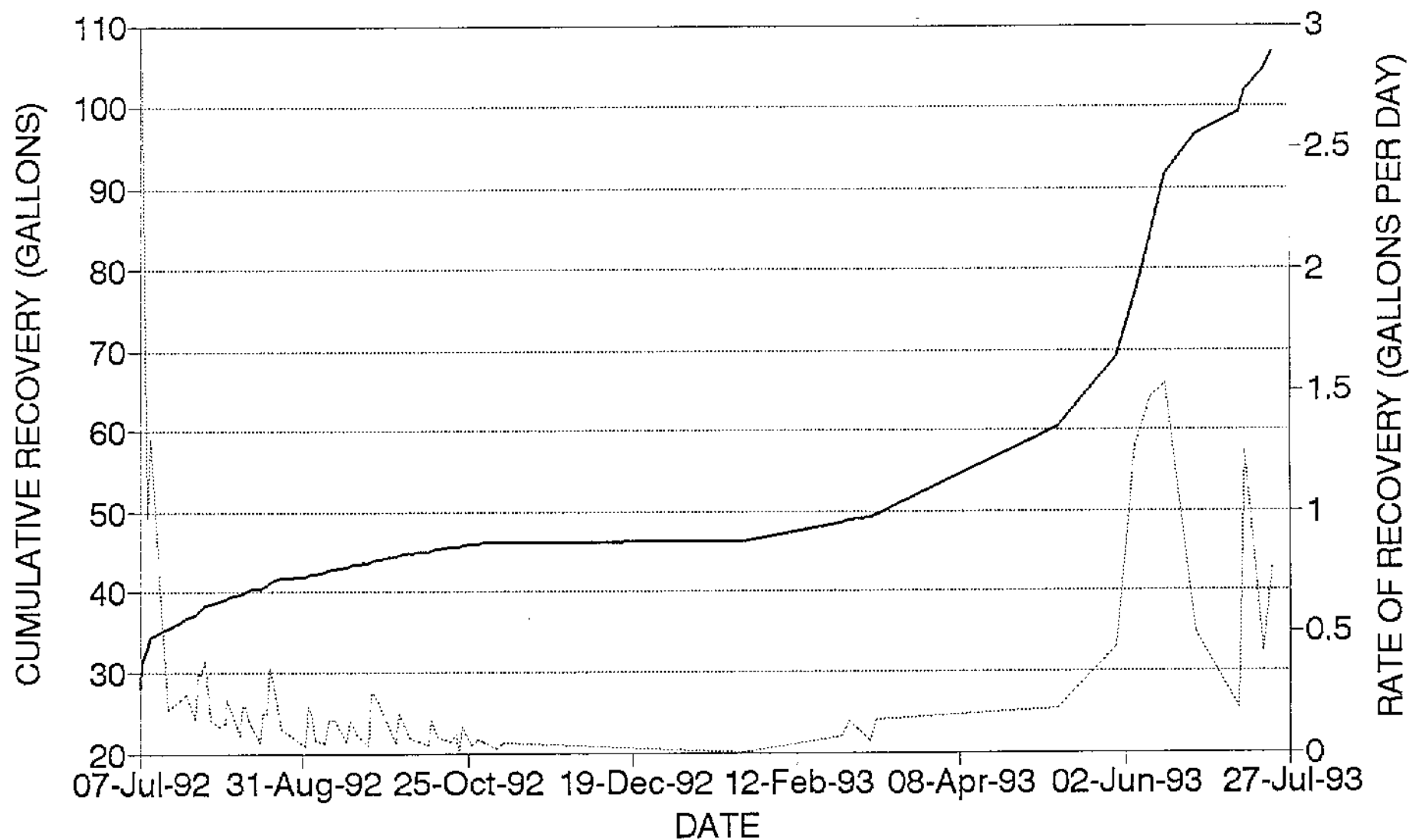
INDEPENDENT FOODS
BURLINGTON, VERMONT
SUMMARY OF FREE PRODUCT RECOVERY FROM MW-7

DATE	INCHES FREE PRODUCT IN FIRST BAILER	TOTAL INCHES RECOVERED	GALLONS RECOVERED	CUMULATIVE GALLONS RECOVERED	GALLONS PER DAY RECOVERED
10-Sep-92	0.5	2.5	0.1	42.8	0.1
11-Sep-92	0.75	2.5	0.1	43.0	0.1
15-Sep-92	0.75	3.5	0.2	43.2	0.0
16-Sep-92	0.5	2.5	0.1	43.3	0.1
17-Sep-92	0.5	2	0.1	43.4	0.1
18-Sep-92	0.5	1.5	0.1	43.5	0.1
22-Sep-92	0.5	2	0.1	43.6	0.0
23-Sep-92	1	4.5	0.2	43.8	0.2
24-Sep-92	1	4.5	0.2	44.1	0.2
01-Oct-92	1.25	5.5	0.3	44.4	0.0
02-Oct-92	0.75	3	0.2	44.6	0.2
06-Oct-92	1.25	4.5	0.2	44.8	0.1
09-Oct-92	0.5	2.5	0.1	44.9	0.0
12-Oct-92	0.75	2	0.1	45.0	0.0
13-Oct-92	0.75	2.5	0.1	45.2	0.1
15-Oct-92	0.75	2.5	0.1	45.3	0.1
19-Oct-92	1	3.5	0.2	45.5	0.0
21-Oct-92	0.75	3	0.2	45.7	0.1
22-Oct-92	0	0	0.0	45.7	0.0
23-Oct-92	0.75	2	0.1	45.8	0.1
26-Oct-92	0.75	2	0.1	45.9	0.0
28-Oct-92	0.75	2	0.1	46.0	0.1
30-Oct-92	0.75	1.75	0.1	46.1	0.0
04-Nov-92	0.5	1.5	0.1	46.2	0.0
06-Nov-92	0.5	1.5	0.1	46.3	0.0
25-Jan-93	0.25	0.5	0.0	46.3	0.0
27-Feb-93	2	42	2.3	48.6	0.1
02-Mar-93	1	7	0.4	48.9	0.1
09-Mar-93	1	6	0.3	49.3	0.0
11-Mar-93	0.75	5	0.3	49.5	0.1
10-May-93	22	200	10.9	60.4	0.2
30-May-93	8	160	8.7	69.1	0.4
05-Jun-93	6	140	7.6	76.7	1.3

INDEPENDENT FOODS
 BURLINGTON, VERMONT
 SUMMARY OF FREE PRODUCT RECOVERY FROM MW-7

DATE	INCHES FREE PRODUCT IN FIRST BAILER	TOTAL INCHES RECOVERED	GALLONS RECOVERED	CUMULATIVE GALLONS RECOVERED	GALLONS PER DAY RECOVERED
10-Jun-93	6	135	7.3	84.1	1.5
15-Jun-93	4	140	7.6	91.7	1.5
25-Jun-93	1.5	90	4.9	96.6	0.5
10-Jul-93	1	50	2.7	99.3	0.2
12-Jul-93	0.75	46	2.5	101.8	1.3
18-Jul-93	0.75	46	2.5	104.3	0.4
21-Jul-93	1	42	2.3	106.6	0.8

INDEPENDENT FOODS GASOLINE RECOVERY FROM MW-7



— CUMULATIVE RECOVERY RATE OF RECOVERY

ADAMS ENGINEERING
 Gerard Adams
 RD #1, Box #3700
 Underhill, Vt. 05489
 899-4945 FAX 899-4376

March 15, 1993

Mr. Dean Grover PE
 Heindel & Noyes.

The following are the boring logs for the Independant Foods project conducted under yours and Chris Aldrich's direction: Soils information from 3 X 60" split spoon where possible otherwise 4" solid auger cuttings. 2" .010" slot wells and sand pack placed in open boreholes. Wells were not developed.

3/12/93 MW #9 Inside southern truck bay. Could not take split spoons, insufficient overhead clearance.

SOILS WELL

-1.2'	Top of well 5' solid riser, well box.
-1.5'	Top of bentonite slurry.
0>-5'	Pulled auger, silty sand fill.
-3.2'	Bottom of slurry, top of sand pack 2 50# bags #1 N.J.
	Silica placed in open borehole.
-4.2'	Top of well screen 14' X 2" X .010" slot WHN.
-5>12'+-	Silty sand.
-12>18'	Saturated very silty sand.
-18.2'	Bottom of screen.
-18>20'	Silt/clay.
-18.5'	Bottom of open hole & sand pack.

MW #10 Inside center truck bay.

-1.2'	Top of well 5' solid riser, well box.
-3'	Top of bentonite slurry.
0>-8'	Rubble stones, possible old foundation.
-6'	Bottom of slurry, top of sand pack 2 50# bags #1 N.J.
	Silica placed in open borehole.
-9.0'	Top of well screen 10' X 2" X .010" slot WHN.
-10>15.0'	Spoon, saturated silty sand piece of metal?
-19.0'	Bottom of screen.
-19.5'	Bottom of open hole & sand pack.

MW #11 Next to South Champlain St.

-1.2'	Top of well 5' solid riser, well box.
-1.5'	Top of bentonite slurry.
-2.3>5.0'	Spoon, Very silty fine sand.
-4.0'	Bottom of slurry, top of sand pack 2 50# bags #1 N.J.
	Silica placed in open borehole.
-6.0'	Top of well screen 14' X 2" X .010" slot WHN.
-5.0>10.0'	Fine sandy silt, gray smells of gasoline
-10>18'	Saturated gray fine sandy silt.
-16.0'	Bottom of screen.
-17'	Bottom of open hole & sand pack.

Gerard Adams

MEMORANDUM

TO: Independent Food Company File, Jeff Noyes, and Dean Grover
FR: Chris Aldrich
DT: March 19, 1993
RE: Monitor Well Installation, March 12, 1993

Friday, March 12, 1993, three monitor wells were installed at the Independent Food Company on South Champlain Street in Burlington, Vermont, by Adams Engineering under the supervision of Chris Aldrich of WH&N. Monitor wells were installed with the Adams' truck-mounted drilling rig with 4" solid augers. PID screening of soils was conducted with a Photovac Microtip (10.6 eV probe). Samples were equilibrated in ziploc bags before PID screenings. Following are soil logs and PID screenings:

Monitor Well #9	
This well is located inside the garage on the west side, adjacent to the service pit. A hole was cut in the garage floor with a 10-inch diameter diamond cutting saw by WH&N personnel. No split spoons could be used on this hole because of the height of the ceiling. Soil samples were obtained from auger cuttings.	
0 - 6"	Concrete that we had augered through
6" - 5'	Medium fine sand, dark brown in color, some fill near the top, dry to 5'. A soil sample was obtained from 4.5'-5'. PID = 0.8 ppm.
5' - 10'	Same as above, with some gravel. A soil sample was obtained from 10'-11'. Fine sand layer at 10'. PID = 8.0 ppm. Water table is difficult to determine. Continued drilling to 20'.
11' - 20'	Silty fine sands. Soil sample obtained at 20'. PID = 6.7 ppm. 14' of 20-slot screen was installed. Total depth = approximately 18'. Water level after a few hours was 13.87' below the garage floor
Monitor Well #10	

Located inside the middle bay, approximately 8' from the garage door. Again, a concrete auger was used to drill through the floor. The concrete was about 6" thick. Drilling in this hole was very difficult because of the amount of rubble and fill.	
1' - 5'	Split spoon sample yielded all fill. Soil composite 1' - 5'. PID = 13.0 ppm at 5'.
5' - 7.5'	Split spoon sampled. Fill. PID = 210 ppm.
10' - 15'	Split-spoon sample. Water table was at approximately 12'. A soil sample was taken at 11'-12'. Fine silty sand, dark brown and greenish brown in color. PID = 381 ppm. The well was set to 19'; 2" diameter 10'. 0.20 screen. Water level after a few hours = 14.78'.
Monitor Well #11	
Located on the edge of the road in a concrete sidewalk. Again, a coring machine was used to drill through the cement approximately 8" thick.	
2.3' - 5.0'	Split-spoon sample. Soil sample taken 3'-5'. Light green silty fine sand. PID = 145 ppm.
5.0' - 10.0'	Split-spoon sample. Soil sample taken from 9'-10'. Brown-green silty fine sand. PID = 1,106 ppm. Continued drilling to 20'. Well was set at 18'. 20-slot screen, 2" diameter PVC 10' long. Water level = 14.98'.
Note: All monitor wells were finished using flush-mount boxes and cemented to the same elevation as concrete was prior to drilling.	



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
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(802) 879-4333
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REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993

PROJECT CODE: HNIF1392
REF.#: 44,734 - 44,745

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Chain of custody indicated preservation with NaN_3 .

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times. All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method. Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



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LABORATORY REPORT

EPA METHOD 8020 -- PURGEABLE AROMATICS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
ANALYSIS DATE: April 28, 1993

PROJECT CODE: HNIF1392
REF.#: 44,735
STATION: MW 1
TIME SAMPLED: 10:00
SAMPLER: C. Aldrich

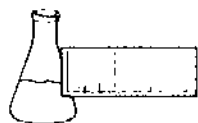
<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	5	ND

Bromobenzene Surrogate Recovery: 99%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 8020 -- PURGEABLE AROMATICS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
ANALYSIS DATE: April 28, 1993

PROJECT CODE: HNIF1392
REF.#: 44,736
STATION: MW 2
TIME SAMPLED: 10:20
SAMPLER: C. Aldrich

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	5	ND

Bromobenzene Surrogate Recovery: 98%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected



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LABORATORY REPORT

EPAMETHIOD 8020 -- PURGEABLE AROMATICS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
ANALYSIS DATE: April 28, 1993

PROJECT CODE: HNIF1392
REF.#: 44,737
STATION: MW 3
TIME SAMPLED: 11:00
SAMPLER: C. Aldrich

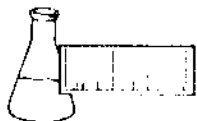
<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	1.4
Toluene	1	ND
Xylenes	1	2.0
MTBE	5	ND

Bromobenzene Surrogate Recovery: 97%

NUMBER OF UNIDENTIFIED PEAKS FOUND: >25

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 8020 -- PURGEABLE AROMATICS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
ANALYSIS DATE: April 28, 1993

PROJECT CODE: IINIF1392
REF.#: 44,738
STATION: MW 4
TIME SAMPLED: 11:45
SAMPLER: C. Aldrich

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	2.2
MTBE	5	ND

Bromobenzene Surrogate Recovery: 99%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 2

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 8020 -- PURGEABLE AROMATICS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
ANALYSIS DATE: April 28, 1993

PROJECT CODE: IINIF1392
REF.#: 44,739
STATION: MW 5
TIME SAMPLED: 12:00
SAMPLER: C. Aldrich

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	2.6
MTBE	5	ND

Bromobenzene Surrogate Recovery: 91%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 20

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 8020 -- PURGEABLE AROMATICS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
ANALYSIS DATE: April 28, 1993

PROJECT CODE: HNIF1392
REF.#: 44,740
STATION: MW 6
TIME SAMPLED: 1:20
SAMPLER: C. Aldrich

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	239.
Chlorobenzene	1	ND ¹
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	27.3
Toluene	1	40.7
Xylenes	1	86.0
MTBE	5	29.4

Bromobenzene Surrogate Recovery: CI²

NUMBER OF UNIDENTIFIED PEAKS FOUND: >25

NOTES:

- 1 None detected
- 2 Coelution Interference



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LABORATORY REPORT

EPA METHOD 8020 -- PURGEABLE AROMATICS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
ANALYSIS DATE: April 28, 1993

PROJECT CODE: HINIF1392
REF.#: 44,741
STATION: MW 7
TIME SAMPLED: 2:00
SAMPLER: C. Aldrich

<u>Parameter</u>	<u>Detection Limit (ug/L)¹</u>	<u>Concentration (ug/L)</u>
Benzene	100	6,760.
Chlorobenzene	100	ND ²
1,2-Dichlorobenzene	100	ND
1,3-Dichlorobenzene	100	ND
1,4-Dichlorobenzene	100	ND
Ethylbenzene	100	916.
Toluene	100	8,300.
Xylenes	100	7,490.
MTBE	500	ND

Bromobenzene Surrogate Recovery: 85%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 20

NOTES:

- 1 Detection limit raised due to high levels of contaminants. Sample run at 1% dilution.
2 None detected



ENDYNE, INC.

Laboratory Services

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LABORATORY REPORT

EPA METHOD 8020 -- PURGEABLE AROMATICS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
ANALYSIS DATE: April 29, 1993

PROJECT CODE: HNIF1392
REF.#: 44,742
STATION: MW 9
TIME SAMPLED: 12:45
SAMPLER: C. Aldrich

<u>Parameter</u>	<u>Detection Limit (ug/L.)¹</u>	<u>Concentration (ug/L)</u>
Benzene	10	321.
Chlorobenzene	10	ND ²
1,2-Dichlorobenzene	10	ND
1,3-Dichlorobenzene	10	ND
1,4-Dichlorobenzene	10	ND
Ethylbenzene	10	98.4
Toluene	10	111.0
Xylenes	10	230.
MTBE	50	59.

Bromobenzene Surrogate Recovery: 86%

NUMBER OF UNIDENTIFIED PEAKS FOUND: >25

NOTES:

- 1 Detection limit raised due to high levels of contaminants. Sample run at 10% dilution.
2 None detected



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LABORATORY REPORT

EPA METHOD 8020 -- PURGEABLE AROMATICS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
ANALYSIS DATE: April 29, 1993

PROJECT CODE: HNIF1392
REF.#: 44,743
STATION: MW 10
TIME SAMPLED: 1:00
SAMPLER: C. Aldrich

<u>Parameter</u>	<u>Detection Limit (ug/L)¹</u>	<u>Concentration (ug/L.)</u>
Benzene	20	3,260.
Chlorobenzene	20	ND ²
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	20	47.4
Toluene	20	124.
Xylenes	20	287.
MTBE	100	206.

Bromobenzene Surrogate Recovery: 81%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 24

NOTES:

- ¹ Detection limit raised due to high levels of contaminants. Sample run at 5% dilution.
² None detected



ENDYNE, INC.

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LABORATORY REPORT

EPA METHOD 8020 -- PURGEABLE AROMATICS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
ANALYSIS DATE: April 29, 1993

PROJECT CODE: HNIF1392
REF.#: 44,744
STATION: MW 11
TIME SAMPLED: 1:50
SAMPLER: C. Aldrich

<u>Parameter</u>	<u>Detection Limit (ug/L)¹</u>	<u>Concentration (ug/L)</u>
Benzene	500	4,760.
Chlorobenzene	500	ND ²
1,2-Dichlorobenzene	500	ND
1,3-Dichlorobenzene	500	ND
1,4-Dichlorobenzene	500	ND
Ethylbenzene	500	961.
Toluene	500	4,770.
Xylenes	500	4,370.
MTBE	2500	ND

Bromobenzene Surrogate Recovery: 103%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 2

NOTES:

- 1 Detection limit raised due to high levels of contaminants. Sample run at 0.2% dilution.
2 None detected



ENDYNE, INC.

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FAX 879-7103

LABORATORY REPORT

EPA METHOD 8020 -- PURGEABLE AROMATICS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
ANALYSIS DATE: April 28, 1993

PROJECT CODE: HNIF1392
REF #: 44,745
STATION: Field Blank
TIME SAMPLED: 1:45
SAMPLER: C. Aldrich

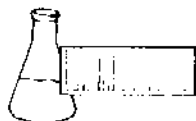
<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	5	ND

Bromobenzene Surrogate Recovery: 103%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
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LABORATORY REPORT

EPA METHOD 8020 -- PURGEABLE AROMATICS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
ANALYSIS DATE: April 28, 1993

PROJECT CODE: HNIF1392
REF.#: 44,734
STATION: Trip Blank
TIME SAMPLED: 8:00
SAMPLER: C. Aldrich

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	5	ND

Bromobenzene Surrogate Recovery: 98%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected



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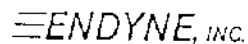
EPA METHOD 602 LABORATORY REPORT

MATRIX SPIKE AND DUPLICATE LABORATORY CONTROL DATA

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Independent Food
REPORT DATE: May 3, 1993
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
ANALYSIS DATE: April 28, 1993

PROJECT CODE: HNIF1392
REF.#: 44,736
STATION: MW 2
TIME SAMPLED: 10:20
SAMPLER: C. Aldrich

<u>Parameter</u>	<u>Sample(ug/L)</u>	<u>Spike(ug/L)</u>	<u>Dup1(ug/L)</u>	<u>Dup2(ug/L)</u>	<u>Avg % Rec</u>
Benzene	0	10	11.3	12.1	117%
Toluene	0	10	11.7	12.4	120%
Ethylbenzene	0	10	12.3	12.9	126%
Xylenes	0	30	34.7	37.0	120%



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CHAIN-OF-CUSTODY RECORD

046467

Lab #	Sample Location	Matrix	GRA B	COMP	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
40451	Trip Blank	H ₂ O	X		4-20-93 800	2	40mL		8020	100% 40	
40452	MW 1				1000						
40453	MW 2				1020						
40454	MW 3				1100						
40455	MW 4				1145						
40456	MW 5				1200						
40457	MW 6				120						
40458	MW 7				200						
40459	MW 9				1245						
40460	MW 10				100						
40461	MW 11				150						
40462	Field Blank				145						

Relinquished by: Signature <i>Chris Aldred</i>	Received by: Signature <i>Im Kelly</i>	Date/Time <i>4/26/93 5:20 PM</i>
Relinquished by: Signature	Received by: Signature	Date/Time

Requested Analyses

Requested Analyses											
1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 H/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pesticides
4	Nitrite N	9	BOD ₅	14	Turbidity	19	BTEX	24	EPA 608 Pesticides		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										



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REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Independent Food
DATE REPORTED: May 13, 1993
DATE SAMPLED: April 20, 1993

PROJECT CODE: HNIF1393
REF. #: 44,746 - 44,755

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry Locker, Ph.D.
Laboratory Director



ENDYNE, INC.

Laboratory Services

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LABORATORY REPORT

TOTAL HYDROCARBONS - EPA METHOD 418.1 (WATER)

CLIENT: Wagner, Heindel & Noyes, Inc.
REPORT DATE: May 13, 1993
PROJECT NAME: Independent Food
PROJECT CODE: HNIF1393
DATE SAMPLED: April 20, 1993
DATE RECEIVED: April 20, 1993
DATE ANALYZED: May 13, 1993
SAMPLER: C. Aldrich

<u>Reference #</u>	<u>Sample ID</u>	<u>Conc. (mg/L)¹</u>
44,746	MW1 ; 10:00	ND ²
44,747	MW2 ; 10:20	ND
44,748	MW3 ; 11:00	2.3
44,749	MW4 ; 11:45	ND
44,750	MW5 ; 12:00	ND
44,751	MW6 ; 1:20	6.2
44,752	MW7 ; 2:00	4,250
44,753	MW9 ; 12:45	3.1
44,754	MW10; 1:00	3.6
44,755	MW11; 1:50	750

Notes:

- 1 Method detection Limit is 0.8 ppm.
- 2 None Detected

enclosures



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CHAIN-OF-CUSTODY RECORD

006668

Project Name: <i>Independent food</i>	Reporting Address: <i>WHN</i>	Billing Address: <i>WHN</i>
Site Location: <i>Burlington VT</i>		
Endyne Project Number: <i>HNIF/1316</i>	Company: <i>WHN Dean Grover</i>	Sampler Name: <i>L. Aldrich</i>
	Contact Name/Phone #: <i>658-0820</i>	Phone #: <i>658-0820</i>

[illegible]

Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time <i>4/20/98 3:40 pm</i>
Relinquished by: Signature	Received by: Signature	Date/Time

Requested Analyses

Requested Analyses											
1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or A
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pesticide
4	Nitrite N	9	BOD ₅	14	Turbidity	19	BTX	24	EPA 608 Pesticide		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCPP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										